CLAIMS

What is claimed is:

1. A method of controlling transmitter power in a wireless communication system in which user data is processed as a multirate signal having a rate N(t) where N(t) is a function of time, in which the user data signal having rate N(t) is converted into a transmission data signal having a faster rate M(t) for transmission and in which transmitter power is controlled by a closed loop system where the transmission power is adjusted by applying a scale factor in response to step up/down data generated by a receiver of the transmitted data, the step up/down data being based in part on relatively slowly collected quality of data received by comprising:

determining step up/down data as a function of N(t)/M(t) such that a change in the user data signal rate or the data rate of the transmission data signal is compensated for in advance of a quality of data based adjustment associated with such a data rate change.

2. The method of claim 1 wherein the user data signal having rate N(t) is converted into the transmission data signal having a faster rate M(t) by repeating selected data bits whereby the energy per bit to noise spectrum density ratio is increased in the transmission data signal.

3. The method of claim 1 wherein the step up/down data is generated by the receiver by combining measured interference power data of the signal received from the transmitter with target signal to interference ratio (SIR) data which is computed by multiplying nominal target SIR data, based on relatively slowly collected received signal quality data, by a factor N(t)/M(t) so that the target SIR data is quickly adjusted when a change in data rate occurs.

4. The method of claim 3 wherein the user data signal having rate N(t) is converted into the transmission data signal having a faster rate M(t) by repeating selected data bits whereby the energy per bit to noise spectrum density ratio is increased in the transmission data signal.

5. The method of claim 3 wherein the transmitter computes the scale factor based on the received step up/down data and $\sqrt{(N(t)/M(t))}$.

6. The method of claim 1 wherein the transmitter computes the scale factor as a function of the received step up/down data and N(t)/M(t).

7. The method of claim 6 wherein the user data signal having rate N(t) is converted into the transmission data signal having a faster rate M(t) by repeating selected data bits whereby the energy per bit to noise spectrum density ratio is increased in the transmission data signal.

8. The method of claim 7 wherein the transmitter computes the scale factor based on the received step up/down data and $\sqrt{(N(t)/M(t))}$.

9. A closed loop transmission power control system for a wireless communication system in which user data is processed as a multirate signal having a rate N(t) where N(t) is a function time, in which the user data signal having rate N(t) is converted into a transmission data signal having a faster rate M(t) for transmission and in which the transmission power is adjusted by applying a scale factor in response to step up/down data, comprising:

a receiver which receives the M(t) rate transmission data signal and generates the step up/down data including:

a data signal rate converter which decreases the data rate of received transmission data M(t) to produce a user data signal having a lower data rate N(t);

a data quality measuring device for measuring the quality of data of the user data signal;

circuitry for computing step up/down data based in part on the measured quality of data of the user data signal; and

said data signal rate converter associated with said circuitry to provide rate data such that said circuitry computes step up/down data as a function of N(t)/M(t) such that a change in the user data signal rate or the rate of the transmission data signal is compensated for in advance of a quality of data based adjustment associated with such data rate change.

10. The closed loop system of claim 9 further comprising a transmitter having a data signal rate convertor which converts the user data signal having rate N(t) into the transmission data signal having a faster rate M(t) by repeating selected data bits whereby the energy per bit to noise spectrum density ratio is increased in the transmission data signal.

11. The closed loop system of claim 9 wherein the receiver further comprises:

an interference measuring device for measuring the power of an interference signal received with the M(t) rate transmission data signal;

said data quality measuring device outputting a nominal target SIR data based on relatively slowly collected received data quality data; and

said circuitry computing the step up/down data by combining measured interference power data of the signal received from the transmitter with target signal to interference ratio SIR data which is computed by multiplying the nominal target SIR data by a factor N(t)/M(t) so that the target SIR data is quickly adjusted when a change in data rate occurs.

12. The closed loop system of claim 9 further comprising a transmitter having a data signal rate convertor which converts the user data signal having rate N(t) into the transmission data signal having a faster rate M(t) by repeating selected data bits whereby the energy per bit to noise spectrum density ratio is increased in the transmission data signal.

13. The closed loop system of claim 12 wherein the transmitter includes a processor which computes the scale factor based on the step up/down data and $\sqrt{(N(t)/M(t))}$.

14. The closed loop system of claim 9 further comprising a transmitter having a processor which computes the scale factor as a function of the step up/down data and N(t)/M(t).

15. The closed loop system of claim 14 further comprising a transmitter having a data signal rate convertor which converts the user data signal having rate N(t) into the transmission data signal having a faster rate M(t) by repeating selected data bits whereby the energy per bit to noise spectrum density ratio is increased in the transmission data signal.

16. The method of claim 14 wherein the transmitter processor computes the scale factor based on the step up/down data and $\sqrt{(N(t)/M(t))}$.